

Contingency Plan Quarterly Report on Ambient Monitoring Results Second Quarter 2018

MWRA gathers data near the outfall discharge location in Massachusetts Bay on various thresholds in the Contingency Plan related to its Deer Island Treatment Plant (DITP) NPDES discharge permit. This report includes ambient Contingency Plan threshold results for monitoring data **that became available April through June 2018**. These include results for nuisance algae and chlorophyll for the winter-spring period. There were no Contingency Plan threshold exceedances for any of these results. Previous Contingency Plan reports are available at:

<http://www.mwra.state.ma.us/harbor/html/archive.htm#cpq>.

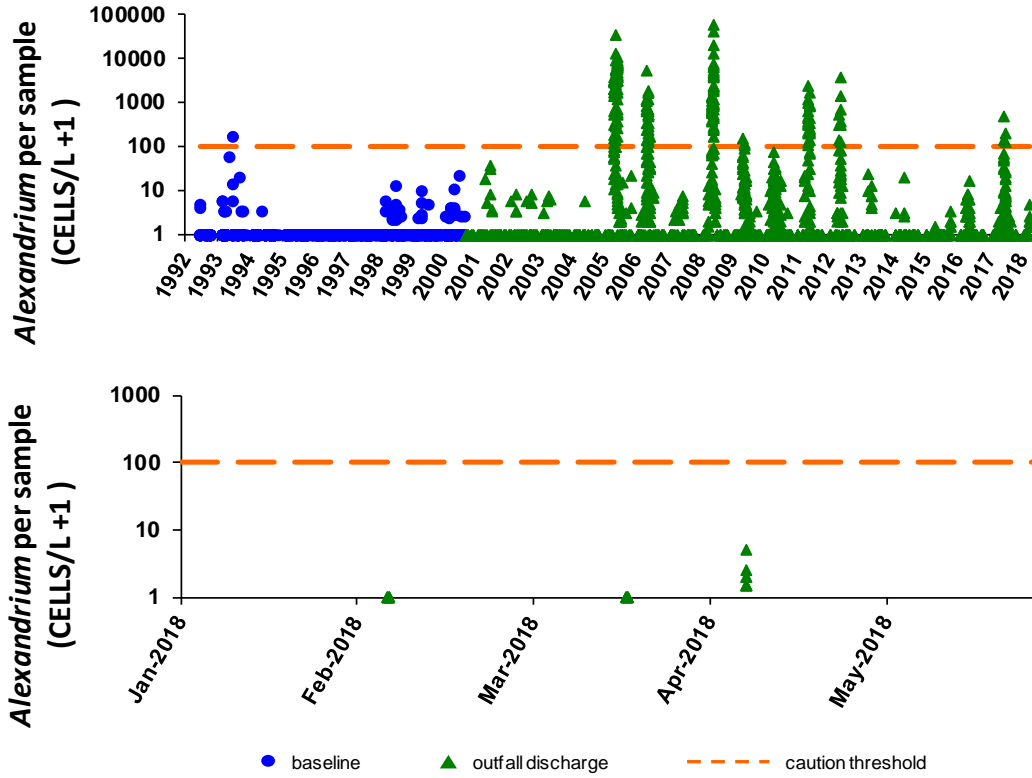
NUISANCE ALGAE

***Alexandrium* – February – April**

The [nuisance algae](#) *Alexandrium fundyense* (“*Alexandrium*”) can cause paralytic shellfish poisoning (PSP, “red tide”) in Massachusetts Bay. MWRA measures *Alexandrium* abundance in its monitoring program, and also checks state fisheries agency observations of shellfish PSP toxicity and other regional monitoring programs to keep track of the course of Gulf of Maine *Alexandrium* blooms.

In the figures below, we compare nearfield *Alexandrium* data to the threshold for each sample through April 2018. The first figure includes data since the start of the monitoring program in 1992. To better display recent values, the second figure shows data for 2018 only, including February, March and April. Note logarithmic scale for each graph.

Data for February-April 2018 show that nearfield results were well below the threshold of 100 cells per liter. Preliminary results from samples collected during May and June 2018 surveys (not plotted) indicate cell counts continued to be very low during those surveys, as well.



Alexandrium per-sample abundance (cells/liter)

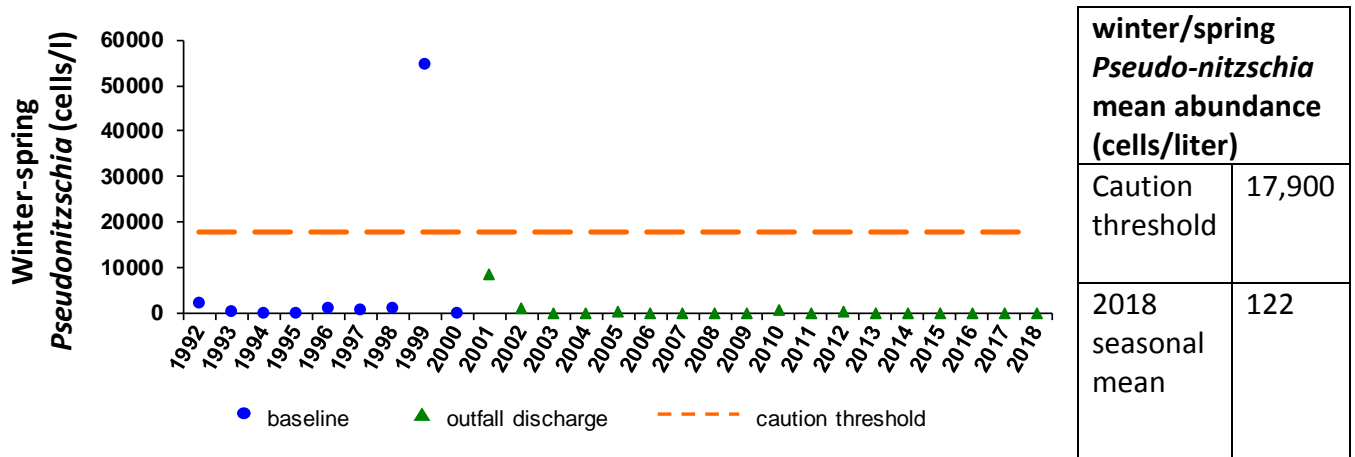
Caution Threshold	100
winter/spring 2018	4*
*maximum of all nearfield samples collected January-April, 2018	

PSEUDO-NITZSCHIA - winter/spring (February – April) 2018

For *Pseudo-nitzschia* nuisance algae species, mean seasonal abundances are compared against threshold values derived from the 95th percentile of seasonal baseline means. This report compares spring 2018 seasonal means from surveys done in February, March, and April against threshold values.

Pseudo-nitzschia was observed at low abundances that were well below the Caution Level threshold of 17,900 cells per liter during winter/spring 2018.

In the figure below, we compare *Pseudo-nitzschia* data to the nuisance algae thresholds for the winter/spring seasonal Caution Level threshold. The graph includes data since the start of the monitoring program in 1992.

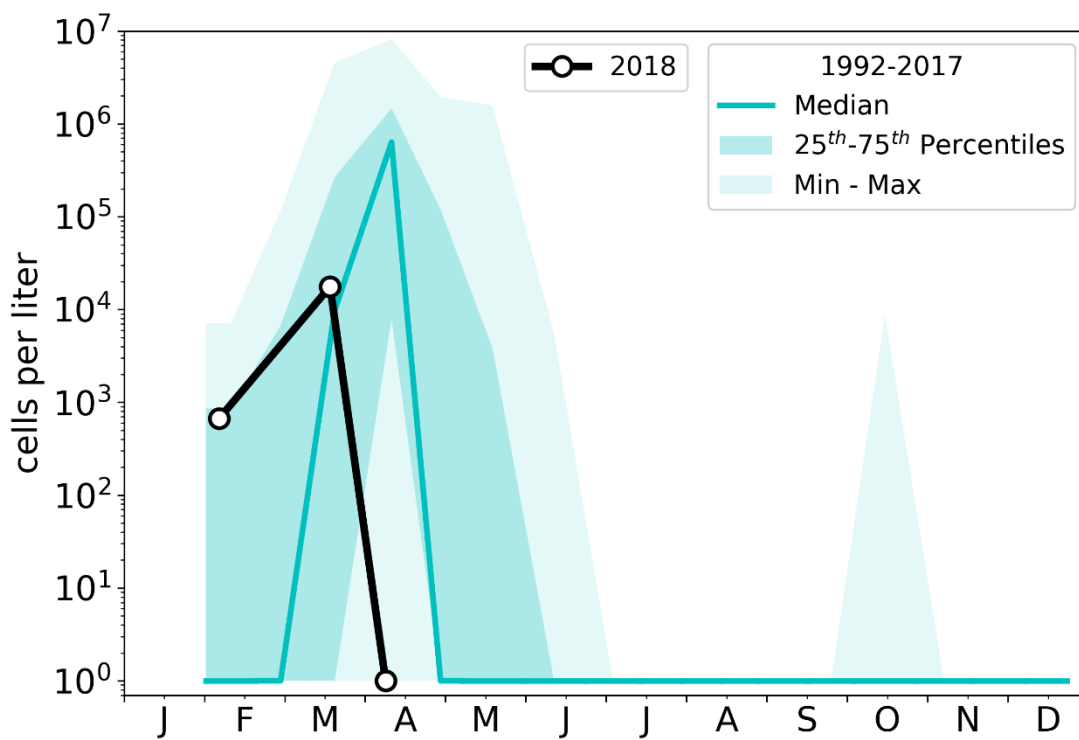


***Phaeocystis* – February-April**

In February 2017, EPA approved changes in the Contingency Plan to remove the threshold for the seasonal abundance of the nuisance alga *Phaeocystis pouchetii* in the nearfield water column. During bloom conditions, *Phaeocystis* can form large, gelatinous colonies, which may accumulate as foam as they disintegrate on beaches. Prior evaluations have indicated that threshold exceedances for this species resulted from natural fluctuations in Massachusetts Bay, do not represent degradation, did not result from MWRA’s discharge, and have not occurred in concentrations that would pose problems for recreation. MWRA agreed to continue to report each quarter on nearfield survey mean abundances of *Phaeocystis pouchetii* compared to its historical seasonal pattern.

The figure below shows the 2018 survey mean *Phaeocystis* results against the seasonal background for all prior years since 1992. Due to reductions in the number of surveys conducted each year, the historical seasonal pattern encompasses more time-points than shown for the current year. Note logarithmic scale for the graph.

Both the timing and magnitude of survey mean *Phaeocystis* abundance for February through April 2018 was within range of the historical seasonal pattern. Nearly all *Phaeocystis* observed during these surveys were present in non-colonial form.



CHLOROPHYLL - Winter/Spring (February – April) 2018

There were no [chlorophyll threshold](#) exceedances for winter/spring 2018. The nearfield mean areal average chlorophyll in winter/spring 2018 was 73 mg/m², well below the Caution Level threshold for winter/spring of 199 mg/m² and in the range of other years, both in the baseline (pre-discharge) and discharge years.

The figure below compares chlorophyll data for winter/spring 2018 (February through April), which included three surveys. The graph includes data since the start of the monitoring program in 1992.

